Preliminary thoughts on reviewing of Delta science programs
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Prepared by: E. Canuel, B. Atwater, J. Wiens

This memo is intended to provide a starting point for discussing how the Delta Independent Science Board (DISB) will carry out its mandate to "provide oversight of the scientific research, monitoring, and assessment programs that support adaptive management of the Delta through periodic reviews of each of those programs that shall be scheduled to ensure that all Delta scientific research, monitoring, and assessment programs are reviewed at least once every four years" (§85280(3)). The contents of this memo will be discussed at the DISB meeting on July 9-10, 2012.

The memo contains three items:

A. For DISB, a generalized list of goals and information needs to be considered by the program under review and addressed by DSIB in their review report.
B. Also for DISB, a partial check-list of questions to be asked of a program under review.
C. For the Delta Science Program (DSP), a suggestion that DSP consider conducting a review of its internal strengths and weaknesses and its external opportunities and challenges. The proposed self-assessment should precede DISB review of the DSP and would include consideration of the points included in (A) above.

Discussion at the July 2012 meeting may also include how the DISB will report its findings and recommendations, what responses will be sought from the programs reviewed, whether the DISB should follow-up on the recommendations, and if so, how.

A. Overall approach to program reviews

To be useful, the review of a program should be constructive and realistic, emphasizing important accomplishments and pointing directions for strengthening the program to realize its goals (or, in some instances, reconsidering its goals). Criticism in the absence of constructive suggestions for improvement is not helpful to the program and will not contribute to the broader objective of strengthening the science that must inform planning for the future of the Delta.

To meet its mandate in reviewing science programs, the DISB should structure its review around several general questions that apply to any program. At the outset of the review process, these questions should be provided to a program for consideration and the DSIB should meet with the program staff to outline goals and expectations of the review and address questions and concerns.

The following questions should guide both the program's self-examination and the DISB review:

- What are the program's goals?
- How successful has the program been in meeting these goals?

- What are metrics by which program success is gauged?
- What is working well?
- What could make the program better?
- What are the program's greatest accomplishments in the past 5 years?
- What are the program's goals for the next 5 years?

In addition, the DISB should include the following in its review:

- What are (realistic) recommendations?
- Timeline for implementation of recommendations?
- Who is the audience for the review, in addition to the reviewed program itself? (e.g., DSP, DISB, DSC, others)?

The following information may provide the foundation for the program review:

- Basic data about program (mission, #employees, skill sets, budget, clients, products, etc)
- Consider use of surveys or focus groups:
    - Internal – leadership, employees, administration
    - External – examples provided for DSP
        - Fellows
        - PIs funded by DSP
        - Workshop participants
        - Peer reviewers
        - Bay-Delta science community – agency and local universities
        - Relevant stakeholders or clients (i.e., potential users of the science)
- Program comparisons (size, resources, mission, etc)
    - Similar programs in Bay-Delta region
    - Similar programs outside Bay-Delta region

B. Specific questions

1. Quality of research or monitoring:
    - What are its strengths and weaknesses?
    - How competitive is it?
    - Are there effective outcome measurements?
    - What is its primary source of support? Is it able to attract third party funding?

2. Research status, directions, opportunities, and performance:
    - Is the research meeting its intended objectives?
    - How competitive are individual scientists within your agency? Publications? Internal funding? External funding, if appropriate?
    - What kinds of collaboration take place within your program? What further collaborations (internal or external) are needed?
    - What are the top three areas for improvement over next 3-5 years.

3. What barriers and challenges has your program encountered?
    - What actions are underway or planned to address them?
    - What additional actions are needed?

4. What changes [in staffing, budget, structure...] may help ensure accomplishment of the program's goals and objectives?

5. How effective is your program's management and leadership in
    - strengthening your program's focus area(s)?
    - integrating research with education and innovation?
    - employing an appropriate evaluation system for measuring project outputs and outcomes?
    - allocating financial resources
    - communicating the value of the program and the importance of its findings to multiple constituents?

6. With what science agencies in the Delta does your program work directly or indirectly?
    - How effective are these collaborations?
    - What agencies are most similar to yours in terms of mission?
    - Are there areas of overlap or redundancy?
    - How can coordination with other agencies be improved?

7. Roles in implementing the Delta Plan
    - What are the major challenges for your program's role in implementation of the Delta Plan?
    - Will implementation of the Delta Plan require additional resources for your program?
    - Will implementation of the Delta Plan require restructuring or reprioritization of your program's goals and outcomes?

8. Roles in implementing the Bay Delta Conservation Plan (BDCP)?
    - What are the major challenges for your program's role in implementation of the BDCP?
    - Will implementation of the BDCP require additional resources?
    - Will implementation of the BDCP require restructuring or reprioritization of your program's goals and outcomes?

9. Roles in implementing the Delta Science Plan?
    - What are the challenges and opportunities in developing a Delta Science Plan?
    - How could the Delta Science Plan be designed to help your research or monitoring succeed?

10. What improvements are needed for your findings and products to reach
    - Scientists or other staff within your program or agency?
    - Scientists or others at other agencies or programs?

- Policy makers?
- Broad public audiences?

C. Draft request to the Delta Science Program

The Delta Science Program has offered to be the first program reviewed by the DISB. As a starting point for this review, the DISB recommends that the DSP consider conducting an assessment of its internal strengths and weaknesses as well as external opportunities and threats.

This kind of assessment (with the unfortunate acronym SWOT) is widely used for strategic planning in business and management. Before asking DSP to conduct a SWOT analysis, the DISB should seek and examine critiques of SWOT as it has been applied to science programs, along with guidance on dos and don'ts.

Were the DSP it to assess itself in this manner, it would:

1. Brainstorm lists of strengths, weaknesses, opportunities and threats (remembering to keep the focus internal for strengths and weaknesses and external for opportunities and threats).

2. Take the laundry-list of ideas within each category and reduce them to the top 5 to 10 ideas (per category).

3. Review each category separately and discuss each of these ideas and the potential implications to the organization.

4. Examine internal strengths and weaknesses of the organization and see how they relate to the opportunities and threats external to the organization.

5. In the resulting matrix, identify:
    a. Factors that represent both strengths of the organization and opportunities in the external environment. These represent potential areas for growth.
    b. Factors that represent weaknesses of the organization and threats in the external environment. These represent areas that need to be addressed.